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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,297	03/26/2004	Luigi Tallone	36030312 US02	9276
7590	02/02/2006		EXAMINER CHIAM, DINH D	
Paul D. Greeley, Esq. Ohlandt, Greeley, Ruggiero & Perle, L.L.P. 10th Floor One Landmark Square Stamford, CT 06901-2682			ART UNIT 2883	
DATE MAILED: 02/02/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

10/810,297

Applicant(s)

TALLONE ET AL.

Examiner

Erin D. Chiem

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 7-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 7-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is responsive to the arguments submitted on November 14, 2005. Claims 3-6 are canceled and currently claims 1, 2, and 7-26 are pending. In view of applicant's argument and further prior art search, the examiner withdraws the objection to the abstract and presents a new ground of rejection as follow.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 recites the limitation "said respective end surfaces." There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 7-26 rejected under 35 U.S.C. 103(a) as being unpatentable over Tabuchi (US 5,481,629 "Tabuchi" hereinafter) in view of Trott (US 5,930,429 "Trott" hereinafter).

Regarding claims 1 and 15, Tabuchi discloses a mounting arrangement comprising a substrate (1), referring to Fig. 2A, 2B, and 6, an input optical fiber (9) associated with said

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substrate an output optical waveguide ('2' '3' '4') in a given set of planar layers of the substrate, at least one optical component (ball lens 11, isolator 12, or ball lens 10) being mountable on the substrate to transmit optical radiation from the input optical fiber to the output optical waveguide. Furthermore, Tabuchi teaches an input/output element which may be a photodiode mounted on the waveguide ('2' '3' '4').

Claims 2 and 16, the substrate (1) is made of silicon oxide, thus meets the limitation of a silicon optical bench support.

Claims 9, 10, and 21-23, referring to Fig. 3J and see col. 8, lines 20-22 wherein Tabuchi discloses the optical member (12) may form an optical isolator by applying a thin laminated layer upon the substrate of the rectangular optical member (12). The examiner would like to point out that an optical isolator is a one-way filter for a range of light frequencies. Regarding claim 22, this is a functional limitation within a device claim, thus the limitation retains no patentable weight.

Claims 12-14 and 24-26, in the referring figures, the round elements (10, 11) are ball or spherical lenses contained in a pyramidal hole (6a-6e and 7a-7e). The examiner respectfully point out that the assembly of two convex lenses facing each other will naturally form the internal image and a ball lens is a composition of two congruent convex lenses.

However, Tabuchi does not explicitly teaches a length of optical waveguide on the substrate in the same planar layers of the output optical waveguide, furthermore, the length of optical waveguide is interposed between the input optical fiber and at least one optical

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component so that at least one optical component is interposed between the length of optical waveguide and the output optical waveguide.

Trott teaches various requirements of photonics modules having various requirements. For example a transmitter modules typically employs an edge-emitting semiconductor lasers for a light source that will have a wide radiation angle. A ball lens is typically placed between the laser and the fiber to narrow the radiation angle and focus the radiation to the fiber core. Similarly, when light leaves the optical fiber also has a radiation angle, a lens is typically placed between the fiber, and a surface-detecting photodetector in a receiver module for focusing the light to obtain high coupling efficiency, see col. 1, lines 35-64).

Seo teaches a method of producing passive alignment between an optical fiber and a waveguide. First, silica is deposited on a silicon substrate to form an optical waveguide (310) as a layer portion. Second, a corresponding portion is etched using potassium hydroxide solution resulting in a V-groove (340) for mounting a fiber such that the center of the fiber core (322) is aligned with the center of the optical waveguide core (330). Finally, the cavity (350) is formed by a dicing blade cutting through the substrate and simultaneously grounds the fiber facet and the waveguide.

Since Tabuchi, Trott, and Seo are all from the same field of endeavor, the purpose disclosed by Trott and Seo would have been recognized in the pertinent art of Tabuchi.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to understand the basic optical concepts disclosed by Trott to form a length of optical fiber supported by the substrate through the V-groove. Since applicant formulates the claims using open-ended transitional phrase "comprising," and the Specification

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does not shine any light on the specificity of the output waveguide. It is reasonable to broadly interpret the output waveguide may have a surface-detecting photodetector mounted upon the output waveguide. The combination of Tabuchi's disclosure and Trott's disclosure provides the insight for one having ordinary skill in the art to understand that it is possible to modify Tabuchi's module by placing a fiber, respectively, between the ball lens (11) and the output waveguide ('2' '3' '4') having a photodiode (8) mounted thereon. **The motivation** for mounting a length of fiber between a ball lens and the output waveguide is to efficiently couple the light from the module to a surface-detecting photodetector (Trott, col. 1, line 35-64) such as the photodetector taught by Tabuchi.

Regarding claims 7 and 8 the limitation wherein the end surfaces being offset to the perpendicular to the input-to-output propagation, this offset is provided by the slanted isolator (12).

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tabuchi in view of Trott as applied to claim 15 above, and further in view of Drake (US Patent 5,999,303).

Tabuchi in view of Trott discloses all the limitations of claim 15, but does not disclose using optical fibers from the same fiber batch for the input and length of fiber on the substrate.

Drake discloses using input and output fibers from the same manufacturing batch having very precise lengths for both lengths of input and output fibers (col. 16, line 3-6) for the purpose of maintaining the same fiber characteristics in an optical system.

Since Tabuchi, Trott, and Drake are all from the same field of endeavor; the purpose disclosed by Drake would have been recognized in the pertinent art of Tabuchi and Trott.

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It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use optical fibers that were drawn from the same batch in implementing on one optical system. **The motivation** for using optical fibers drawn from the same batch is to maintain the closely similar characteristics of the optical fibers such as having substantially same core index, cladding index, and the same low level of impurities.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tabuchi in view of Trott as applied to claim 15 above, and further in view of Harpin et al. (US Patent 5,787,214 "Harpin" hereinafter).

Tabuchi in view of Trott discloses all the limitations of claim 15, but does not disclose using optical fibers from the same fiber batch for the input and length of fiber on the substrate.

Harpin teaches applying a layer of silicon nitride to the end facet of the waveguide for the purpose of reducing backreflection (col. 4, lines 1-4).

Since Tabuchi, Trott, and Harpin are all from the same field of endeavor, the purpose disclosed by Harpin would have been recognized in the pertinent art of Tabuchi and Trott.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to apply anti-reflective coating to the end facet of the waveguides that are coupled together. **The motivation** for applying an anti-reflective coating is to reduce backreflection as taught by Harpin.

Response to Arguments

Applicant's arguments filed November 14, 2005 with respect to the rejection(s) of claim(s) 1, 2, 7-26 under 103 have been fully considered and are persuasive. Therefore, the

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rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Tabuchi, Trott, Drake, and Harpin.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erin D Chiem
Examiner
Art Unit 2883



Frank G. Font
Supervisory Primary Examiner
Technology Center 2800